

the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;
projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface;
and

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

Please enter the amendment of Claim 4 as indicated below.

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cont. 4.(Amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;
projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface;
and

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity,

so that activated portions of the silicon layer can be selectively oxidized or modified.

[Please enter the amendment of Claim 5 as indicated below.]

5.(Amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface; and

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the step of projecting coherent radiation comprises projecting a coherent beam of electrons.

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Please enter the amendment of Claim 8 as indicated below.

8.(Amended) A method according to Claim 11 wherein the step of projecting coherent radiation comprises projecting laser radiation.

[Please enter the amendment of Claim 9 as indicated below.]

9.(Amended) A method according to Claim 5 wherein the holographic projection of the desired image comprises a Fresnel hologram.

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[Please enter the amendment of Claim 10 as indicated below.]

10.(Amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation toward a reflector surface so that the coherent

radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface; and

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the step of projecting the coherent radiation comprises projecting the coherent radiation along divergent paths.

[Please enter the amendment of Claim 11 as indicated below.]

11.(Amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface;

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image; and

filtering the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

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[Please enter the amendment of Claim 12 as indicated below.]

12.(Amended) A method according to Claim 5 wherein projecting coherent radiation comprises projecting two beams of coherent radiation toward the reflector surface.

[Please enter the amendment of Claim 13 as indicated below.]

13.(Amended) A method for patterning a layer on a substrate with a desired image, the method comprising the steps of:

projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

projecting a portion of the coherent radiation to the layer without reflecting off the reflector surface;

maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image; and

projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation;

wherein maintaining the substrate further comprises maintaining the substrate including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

Please enter the cancellation of Claims 14 and 15.

Please enter the amendment of Claim 16 as indicated below.

16.(Amended) A system for patterning a layer on a substrate with a desired

image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be selectively removed, maintained, or modified.

[Please enter the amendment of Claim 17 as indicated below.]

17.(Amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the

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desired image;

wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

[Please enter the amendment of Claim 18 as indicated below.]

18.(Amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the means for projecting coherent radiation comprises means for projecting a coherent beam of electrons.

Please enter the amendment of Claim 21 as indicated below.

21.(Amended) A system according to Claim 24 wherein the means for projecting coherent radiation comprises means for projecting laser radiation

[Please enter the amendment of Claim 22 as indicated below.]

22.(Amended) A system according to Claim 18 wherein the holographic projection of the desired image comprises a Fresnel hologram.

[Please enter the amendment of Claim 23 as indicated below.]

23.(Amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface; and

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

wherein the means for projecting the coherent radiation comprises means for projecting the coherent radiation along divergent paths.

[Please enter the amendment of Claim 24 as indicated below.]

24.(Amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface;

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the

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desired image; and

means for filtering the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

[Please enter the amendment of Claim 25 as indicated below.]

25.(Amended) A system according to Claim 18 wherein the means for projecting coherent radiation comprises means for projecting two beams of coherent radiation toward the reflector surface.

[Please enter the amendment of Claim 26 as indicated below.]

26.(Amended) A system for patterning a layer on a substrate with a desired image, the system comprising:

means for projecting coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface to provide a holographic projection of the desired image wherein the reflector surface includes information that corresponds to an inverse of the holographic projection of the desired image;

means for projecting a portion of the coherent radiation to the substrate including the layer without reflecting off the reflector surface;

means for maintaining the substrate including the layer in the path of the of the reflected radiation and in the path of the portion of the coherent radiation projected without reflecting off the reflector surface so that the holographic projection of the desired image is projected onto the layer to thereby pattern the layer with the desired image;

means for projecting coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the second reflector surface to provide a second holographic projection of reflected radiation; and

means for maintaining the substrate including the layer in the path of the radiation reflected off the second reflector surface so that the second holographic projection is projected onto the layer.

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Please enter the cancellation of Claims 27 and 28.

Please enter the amendment of Claim 29 as indicated below.

29.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image;

wherein the layer comprises an oxide layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the oxide layer can be removed, maintained, or modified.

A5 [Please enter the amendment of Claim 30 as indicated below.]

30.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image;

wherein the layer comprises a silicon layer that is activated on exposure to portions of the holographic projection of the desired image having sufficient intensity, so that activated portions of the silicon layer can be selectively oxidized or modified.

[Please enter the amendment of Claim 31 as indicated below.]

31.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

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cont. a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image;

wherein the coherent radiation comprises a coherent beam of electrons.

Please enter the amendment of Claim 34 as indicated below.

34.(Amended) A system according to Claim 37 wherein the coherent radiation comprises laser radiation.

[Please enter the amendment of Claim 35 as indicated below.]

35.(Amended) A system according to Claim 31 wherein the holographic projection of the desired image comprises a Fresnel hologram.

[Please enter the amendment of Claim 36 as indicated below.]

36.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

A6 a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image;

wherein the radiation source projects the coherent radiation along divergent paths.

[Please enter the amendment of Claim 37 as indicated below.]

37.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image; and

a filter that is configured to filter the coherent radiation reflected off the reflector surface to reduce transmission of portions of the interference pattern corresponding to defects on the reflector surface.

[Please enter the amendment of Claim 38 as indicated below.]

38.(Amended) A system according to Claim 31 wherein the radiation source comprises two radiation sources that are each configured to project a respective beam of coherent radiation toward the reflector surface.

[Please enter the amendment of Claim 39 as indicated below.]

39.(Amended) A system for patterning a layer on a substrate surface with a desired image, the system comprising:

a radiation source that is configured to project coherent radiation toward a reflector surface so that the coherent radiation is reflected off the reflector surface and so that a portion of the coherent radiation is projected to the layer without reflecting off the reflector surface to project a holographic projection of the desired image on the layer so that the holographic image of the desired image is used to pattern the layer with the desired image;

wherein the radiation source is further configured to project coherent radiation toward a second reflector surface so that the coherent radiation is reflected off the

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second reflector surface to project a second holographic projection of reflected radiation on the layer.

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Please enter the cancellation of Claim 40.